

REMARKS

Claims 1-12 are currently pending in the subject application, and are presently under consideration. Claims 1-12 are rejected. Claim 5 has been amended. Favorable reconsideration of the application is requested in view of the amendments and comments herein.

I. Amendment to the Specification

Paragraphs 10 and 16 of the specification were amended to correct typographical errors.

II. Rejection of Claims 1, 3-6, and 7-10 Under 35 U.S.C. §103(a)

Claims 1, 3-6, 7-10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,198,836 to Hauke ("Hauke") in view of U.S. Patent No. 5,559,504 to Itsumi, et al. ("Itsumi"). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Claim 1 recites a method for performing biometric identity verification comprising scanning at least two biometric features of a user simultaneously using at least two practically identical biometric scanners and processing data from the at least two scanners in at least one processor, wherein simultaneous use of multiple biometric scanners provides desirable improvements in accuracy and processing speed, at a lower cost than by using a single, larger biometric scanner.

Hauke teaches a method of improving fingerprint identification by a guidance means for proper orientation of fingers on a scanner. The Office Action cites a reference to Fig. 7, item 26 and Col. 4, lines 19-26 of Hauke to demonstrate a teaching of at least two biometric scanners. The sensors 26 are not scanners, as recited in claim 1. The sensors 26 in Hauke are provided to facilitate the proper alignment and positioning of fingers on a single detecting optical unit 12. The sensors 26 monitor and ensure contact with both fingers. Hauke at no point teaches or suggests the use of at least two scanners for biometric identity verification. Since there is no teaching or suggestion of at least two biometric scanners in Hauke, there is likewise no teaching

or suggestion of processing data from at least two scanners in Hauke, as further recited by claim 1.

The presence of Itsumi does not cure the deficiency of Hauke. In contrast to claim 1, Itsumi teaches a shape surface sensor that includes a plurality of pressure sensitive electrodes for sensing fingerprints. The electrodes of the sensor are operative to create an analog signal that is used to identify the unique pattern of a fingerprint. The Office Action relies on Itsumi for its teaching of using a single, larger biometric scanner. Based on such teaching, the Office Action asserts that it would have been obvious to modify Hauke to include a single, larger biometric scanner. The Applicant agrees with this assertion. However, this assertion actually supports a conclusion that claim 1 is patentable, since it seems that the Office Action has misconstrued claim 1, as well as other claims in the instant application.

To reiterate, claim 1 recites a method for performing biometric identity verification that includes "using at least two practically identical biometric scanners...wherein the use of multiple biometric scanners provides desirable improvements in accuracy and processing speed, at a lower cost than by using a single, large biometric scanner." Claim 1 is therefore not claiming a single, large biometric scanner, but instead includes a wherein statement to distinguish from existing biometric identity verification methods that use a single, large biometric scanner. Since, as concluded in the Office Action, the combination of Hauke and Itsumi support the obviousness of using a single, larger biometric scanner, this combination must teach against that which is actually recited in claim 1, namely using at least two biometric scanners.

Furthermore, Itsumi teaches various methods of prior art fingerprint identification involving the conversion of two-dimensional image signals to one-dimensional projection signals of fingerprints. Instead of teaching at least two practically identical biometric scanners, as recited in claim 1, the device of Itsumi is described as being singular: "the surface shape sensor...formed on a substrate, and comprising a plurality of linear electrodes..." (Col. 2, lines 63-64, emphasis added). Therefore, Itsumi does not teach or suggest the use of at least two practically identical biometric scanners, as recited in claim 1. There is consequently no motivation in either Hauke or Itsumi, individually or in combination, for one of ordinary skill in

the art to use at least two practically identical biometric scanners for scanning at least two biometric features of a user simultaneously to perform identity verification.

For the above reasons, reconsideration and allowance of claim 1 is thus respectfully requested.

For at least the same reasons mentioned above with regard to claim 1, claim 3 is patentable over the cited art. Therefore, reconsideration and the allowance of claim 3, and claim 4 which is dependent thereon, are respectfully requested.

Claim 5 has been amended to correct typographical errors, to remove extraneous text after the claim, and to clarify the method of how fingerprint data is obtained from at least two practically identical one-dimensional scanners. Amended claim 5 recites scanning at least two fingerprints of a user simultaneously by a relative swiping of at least two fingers across at least two practically identical one-dimensional scanners, and processing data from the at least two scanners in at least one processor, including converting one-dimensional scanner data to two-dimensional fingerprint data, to obtain biometric data that uniquely identify the scanned biometric features, wherein simultaneous use of multiple biometric scanners provides desirable improvements in accuracy and processing speed, at a lower cost than by using a single, larger biometric scanner.

The Office Action cites a reference to Col. 3, lines 18-49 in Hauke. This response assumes that the Office Action intended to cite this section from Itsumi, and not from Hauke. Itsumi teaches a plurality of one-dimensional pressure sensitive electrodes that create one-dimensional resistance signals to obtain one-dimensional surface shape data. The one-dimensional fingerprint surface shape data is obtained by applying pressure of the finger onto the plurality of pressure sensitive electrodes. This does not, however, teach or suggest any scanning of at least two fingerprints of a user simultaneously by a relative swiping of at least two fingers across at least two practically identical one-dimensional scanners, as recited in amended claim 5. Consequently, there is no motivation from the teachings of Itsumi, alone or in combination with Hauke, for one with ordinary skill in the art to scan at least two fingerprints of a user

simultaneously by a relative swiping of at least two fingers across at least two practically identical one-dimensional scanners.

Amended claim 5 also recites converting one-dimensional scanner data to two-dimensional fingerprint data to obtain biometric data that uniquely identifies the scanned biometric features. In contrast to the position in the Office Action, Itsumi does not teach or suggest converting one-dimensional scanner data to two-dimensional fingerprint data to obtain biometric data that uniquely identifies the scanned biometric features. In particular, Itsumi describes methods of prior art that convert two-dimensional fingerprint data into one-dimensional fingerprint data. Various other embodiments described in Itsumi detail how the surface shape sensor of Itsumi analyzes one-dimensional fingerprint data. Itsumi emphasizes a more efficient method of analyzing one-dimensional fingerprint data by not converting two-dimensional data into one-dimensional data. For example, Itsumi states:

"More specifically, one-dimensional fingerprint data (a projection signal) in the longitudinal direction of the finger is not formed by processing two-dimensional image signals of the entire finger, unlike in the conventional identification device, but is formed from one-dimensional resistance signals. *Image signals of the entire finger need not be formed*, so that the fingerprint data can be formed in a small data volume with a simple algorithm, thereby reducing the time required for the whole signal processing." (Col. 6, line 62-Col. 7, line 4, emphasis added)

The above passage demonstrates that Itsumi teaches the recognition of and solution to a problem that teaches against using two-dimensional fingerprint data. Itsumi therefore does not teach or suggest a method for obtaining biometric data from the conversion of one-dimensional scanner data to two-dimensional scanner data.

For at least these reasons and the reasons cited above with regard to claim 1, amended claim 5 should be allowed, and its allowance, as well as the allowance of claim 6 which is dependent thereon, is respectfully requested.

For at least the same reasons mentioned above with regard to claim 1, claim 7 is patentable over the cited art. Reconsideration and allowance of claim 7, as well claims 8-10 which are dependent thereon, is respectfully requested.

Claim 8, which depends from claim 7, recites that the at least one processor includes at least two processors operating in parallel. The examiner cites a reference to Fig. 3, item 20 of Itsumi with regard to a processor, and that item 19 of the same Figure constitutes an additional processor. Since Fig. 3 of Itsumi has no reference numbers associated with it, it is assumed that the Office Action was actually intending to reference Fig. 3 of Hauke, which includes reference number 19. In contrast to claim 8, Hauke teaches evaluation electronics 14 that perform comparisons of a fingerprint recorded through the image recording device 10 to stored comparison fingerprint patterns in an associated data bank 19. The Office Action incorrectly points to reference number 19 as being an additional processor when it is actually a data bank of stored comparison fingerprint patterns (Col. 3, lines 37-38). Hauke thus does not teach or suggest at least two processors operating in parallel.

Itsumi shows three separate block diagrams each containing a processing unit (Fig. 1, item 30, Fig. 16, item 33, and Fig. 26, item 72, respectively) to process a signal from the respective fingerprint input devices. However, in the discussion of these processing units, Itsumi always refers to the processing unit in a singular form, and does not teach or suggest that any of the processing units could consist of at least two processors operating in parallel to process data from at least two biometric scanners. For at least these reasons, reconsideration and allowance of claim 8 is respectfully requested.

For the reasons described above, claims 1, 3-6, 7-10 are patentable over the cited art, and their allowance is respectfully requested.

III. Rejection of Claims 2, 11, and 12 Under 35 U.S.C. §103(a)

Claims 2, 11, and 12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hauke in view of U.S. Patent No. 4,151,512 to Riganati et al. ("Riganati"). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Claim 2 recites a method of processing data from at least two scanners, in at least two processors operating in parallel, to obtain biometric data that uniquely identifies the scanned biometric features. As mentioned above with regard to claim 8, Hauke neither teaches nor

suggests the use of at least two processors operating in parallel. Additionally, the Office Action even states that Hauke is silent on details concerning at least two processors operating in parallel. Riganati teaches a system that can scan a plurality of fingerprints in parallel or in serial and feed the information from the scan to an information processor. The "parallel" reference in Riganati concerns the scanning of fingerprints (*i.e.*, that multiple fingerprints can be scanned at the same time). Additionally, the cited section in Riganati that is relied upon by the Office Action explicitly mentions "a single information processor" (Col. 7, line 51). Therefore, Riganati does not teach or suggest processing data from at least two scanners in at least two processors operating in parallel to obtain biometric data that uniquely identifies the scanned biometric features, as recited in claim 2. Since the teachings of Hauke and Riganati, either alone or in combination, fail to suggest the use of at least two processors operating in parallel to obtain biometric data that uniquely identifies the scanned biometric features, the allowance of claim 2 is respectfully requested.

Claim 11 recites a system for performing biometric identity verification comprising at least two practically identical one-dimensional fingerprint scanners, for scanning at least two fingerprints of a user simultaneously, and two processors ordinarily in parallel each including conversion logic, for processing data from the at least two scanners to obtain biometric data that uniquely identifies the scanned biometric features including converting one-dimensional scanner data to two-dimensional fingerprint data.

Riganati teaches a single two-dimensional scan window that converts the two-dimensional data resulting from the scan into a one-dimensional data array (Col. 7, line 62-Col. 8, line 19) for processing. This is similar to the approach taught by Istumi and is consequently an improvement over (*e.g.*, the conversion of two-dimensional data into one-dimensional data). However, Riganati does not teach or suggest the conversion of one-dimensional scanner data into two-dimensional fingerprint data, as recited in claim 11. Riganati also fails to teach or suggest the use of one-dimensional fingerprint scanners, nor does Riganati teach or suggest the use of at least two such scanners, as recited in claim 11. Additionally, as mentioned above with regard to claim 2, Riganati does not teach or suggest two processors in parallel, as recited in claim 11. In



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view of the markedly different approach taught by Riganati, alone as well as in combination with Hauke, one of ordinary skill in the art would not be motivated to provide the system recited in claim 11. Accordingly, reconsideration and allowance of claim 11 is respectfully requested.

For the same reasons mentioned above with regard to claims 2 and 11, claim 12 is patentable over the cited art. Reconsideration and allowance of claim 12 is respectfully requested.

For the reasons described above, claims 2, 11, and 12 are patentable over the cited art, and allowance of such claims is respectfully requested.

IV. CONCLUSION

In view of the foregoing remarks, Applicant respectfully submits that the present application is in condition for allowance. Applicant respectfully requests reconsideration of this application and that the application be allowed to issue.

The Examiner is invited to call the undersigned if she believes a telephone interview would be helpful for further prosecution of this matter.

Please charge any deficiency or credit any overpayment in the fees for this amendment to our Deposit Account No. 20-0090.

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